



Armed Forces College of Medicine

AFCM



Front of leg

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INTENDED LEARNING OBJECTIVES (ILO)



By the end of this lecture the student will be able to:

- Describe the attachments, action and nerve supply of muscles of front of leg
- Define attachment and structures passing behind extensor retinacula
- Describe root value, origin, course and branches of anterior tibial (deep peroneal) nerve
- State beginning, course and branches of anterior tibial artery

Lecture Plan



1. Part 1 : leg compartments
2. Part 2 : Tibialis anterior, extensor hallucis longus , extensor digitorum , peroneous tenuis
3. Part 3 : summary of anterior compartment
4. Lecture Quiz

Compartments of leg



Interosseous Membrane

Anterior c

lateral

**Posteri
or**

Leg is divided into

**1- anterior
compartment**

2- lateral compartment

**3- posterior
compartment**

FASCIAL SEPTUM

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Anterior compartment



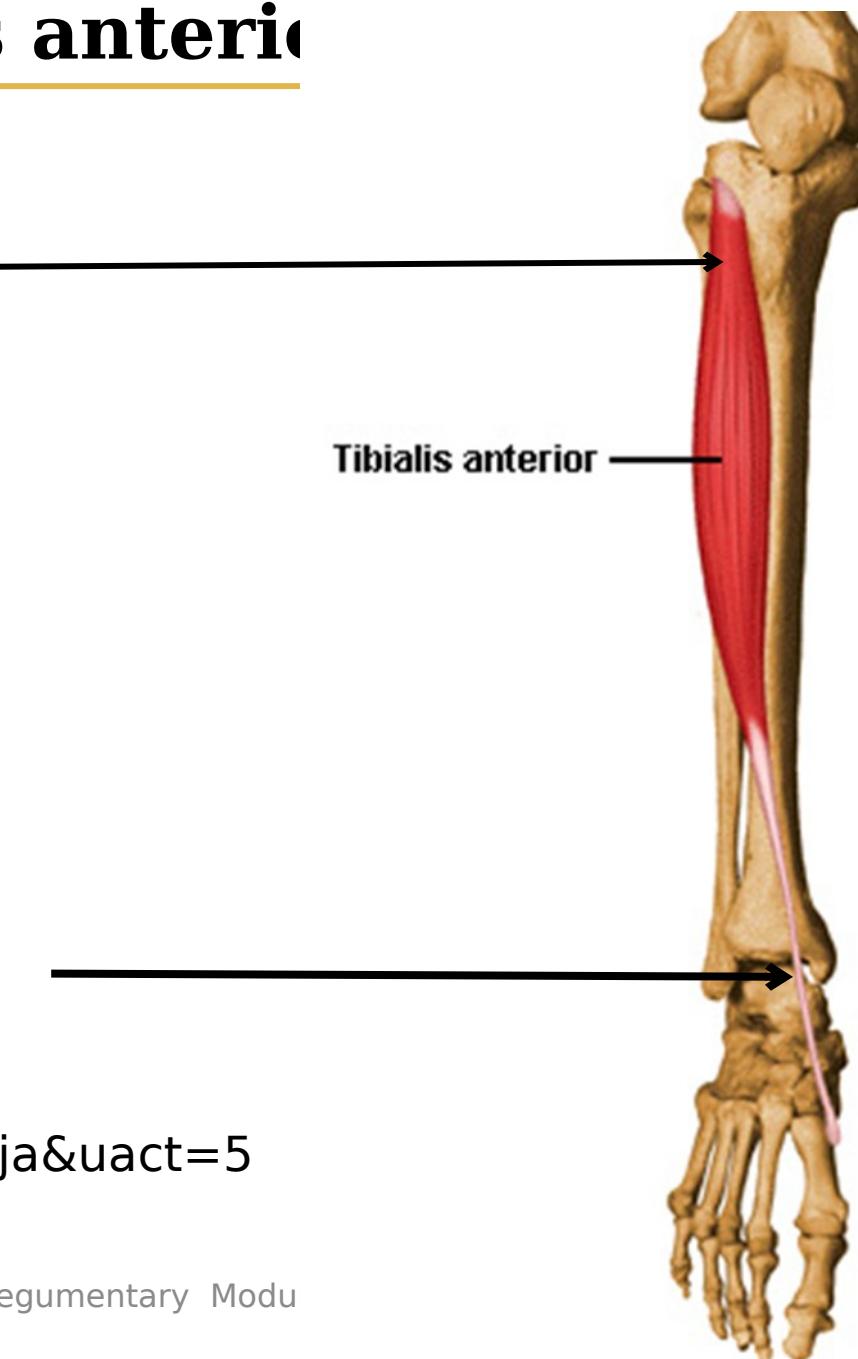
- 1. Muscles** : tibialis anterior, extensor hallucis, extensor digitorum longus , peroneus tertius muscle
- 2. Nerve**: Anterior tibial nerve
- 3. Vessel** :Anterior tibial vessels

Tibialis anterior



Origin : from the upper 2/3 of the lateral surface of tibia

Insertion : into the medial cuneiform bone and the base of first metatarsal bone



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Extensor hallucis longus



**Origin : from the middle
2/4 of the medial surface
of fibula.**



**Insertion : into the
dorsum of the base of
distal phalanx of the big
toe.**

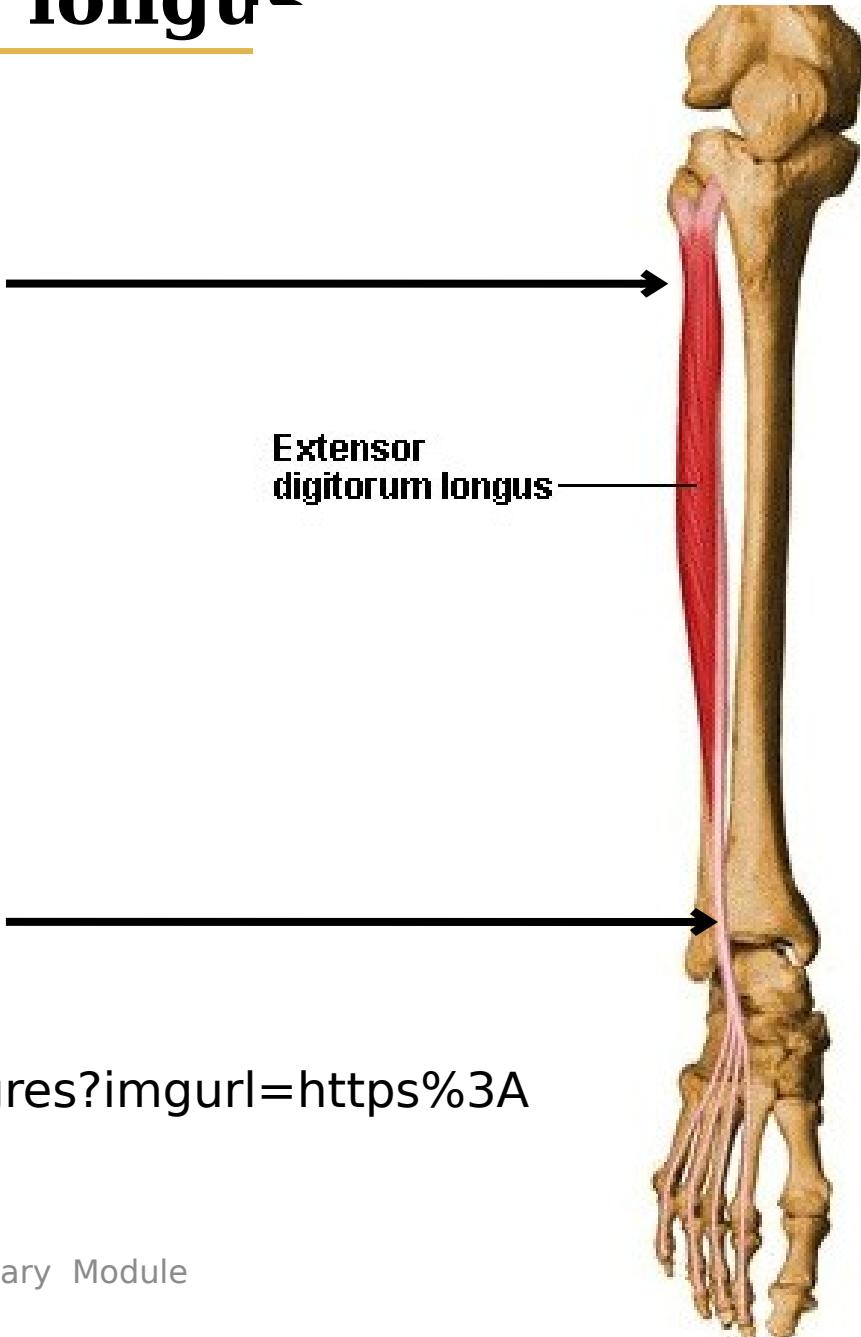


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Extensor digitorum longus



**Origin : from the upper 3/4
of the medial surface of
fibula.**



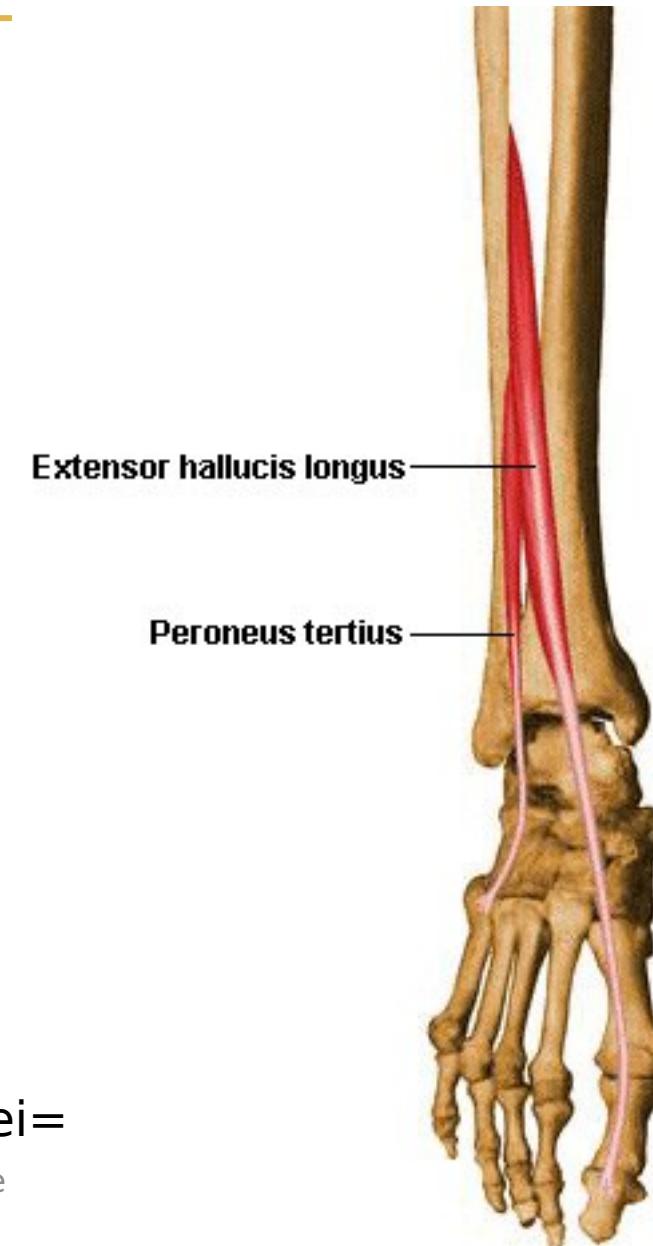
Insertion : by four tendons one for each of the lateral 4 toes by extensor expansion.

Peroneus tertius



**Origin : from the lower 1/4
of the medial surface of
fibula .**

**Insertion : into the
dorsum of the base of fifth
metatarsal bone .**

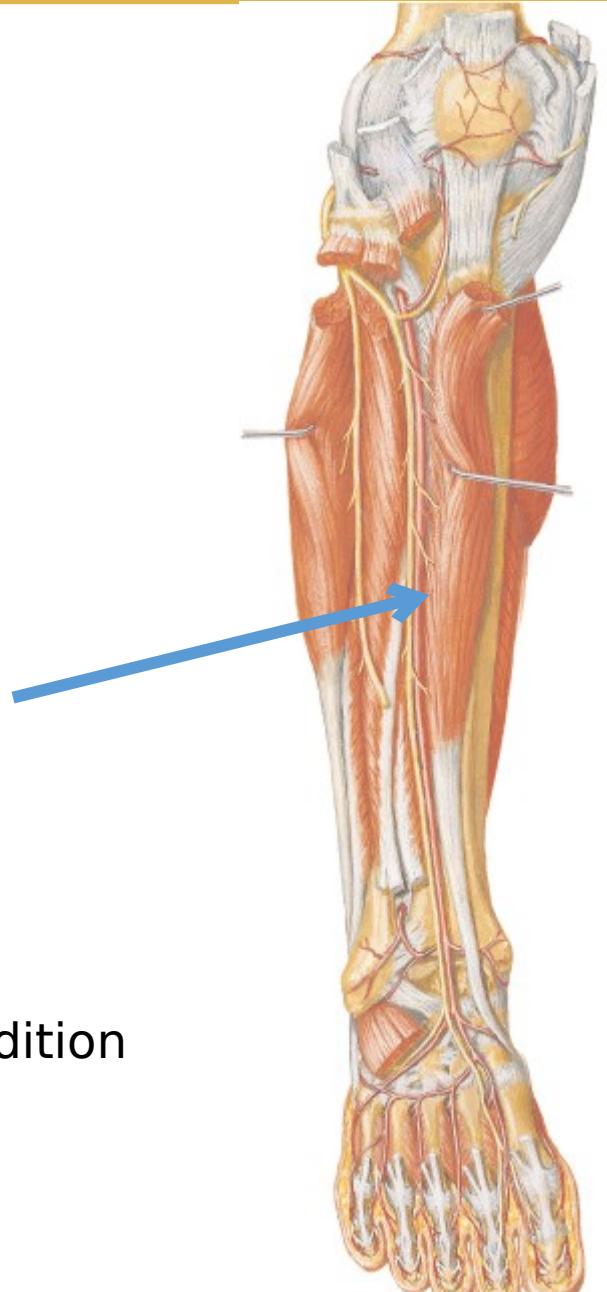


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Nerve supply



**All muscles of anterior compartment
are supplied by
Anterior tibial or deep peroneal nerve**

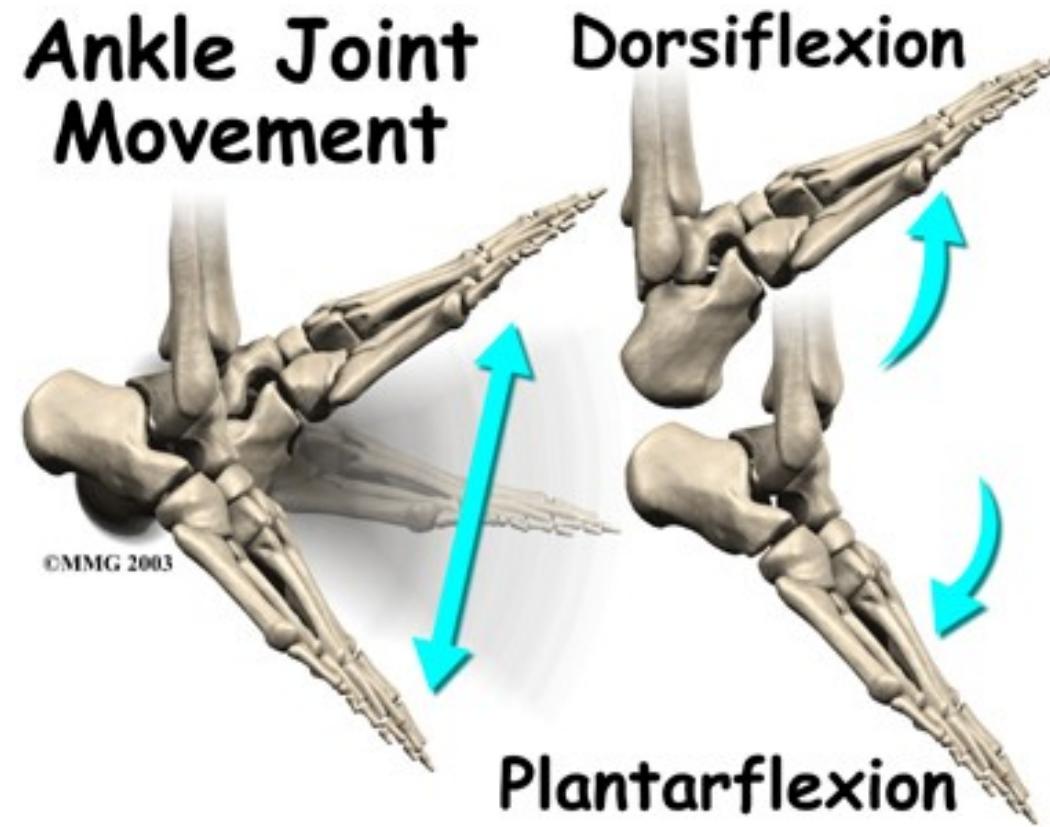


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Action of muscles of anterior compartment



muscles of anterior compartment produce dorsiflexion



Action of muscles of anterior compartment



1) Tibialis anterior:

important **invertor** of the foot when it is raised from the ground.

2) Extensor hallucis longus:

extends the metatarsophalangeal and interphalangeal joints of the big toe.

3) Extensor digitorum longus:

extends the metatarsophalangeal and interphalangeal joints of the lateral **4** toes.

4) Peroneus tertius:

eversion of the foot

Anterior tibial nerve



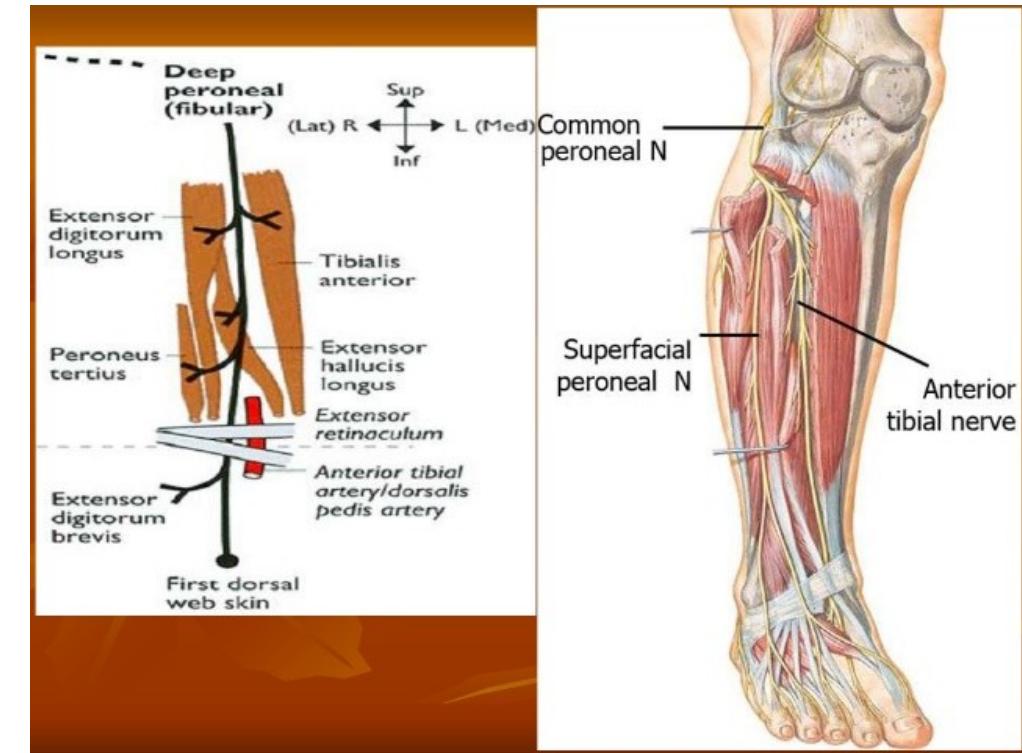
-It is one of the two terminal branches of the **common peroneal nerve**.

-it pierce the anterior intermuscular septum to reach anterior compartment .

-The nerve **lies lateral to the anterior tibial vessels** in the upper part of the leg then in **front of the vessels** then **lateral** to them in the lower part of the leg.

-lies under cover of the superior extensor retinaculum.

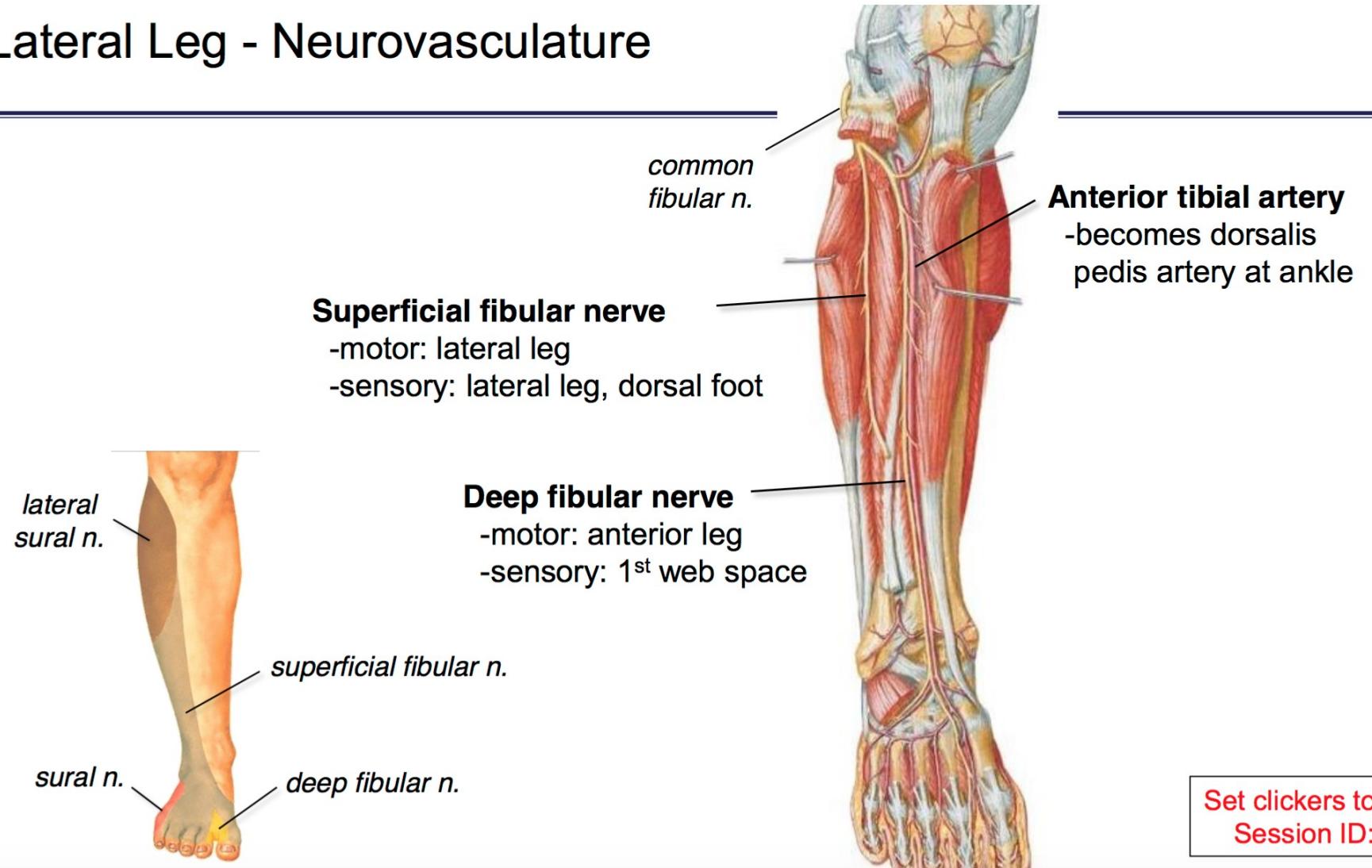
- It divides in the dorsum of the foot into **medial and lateral**



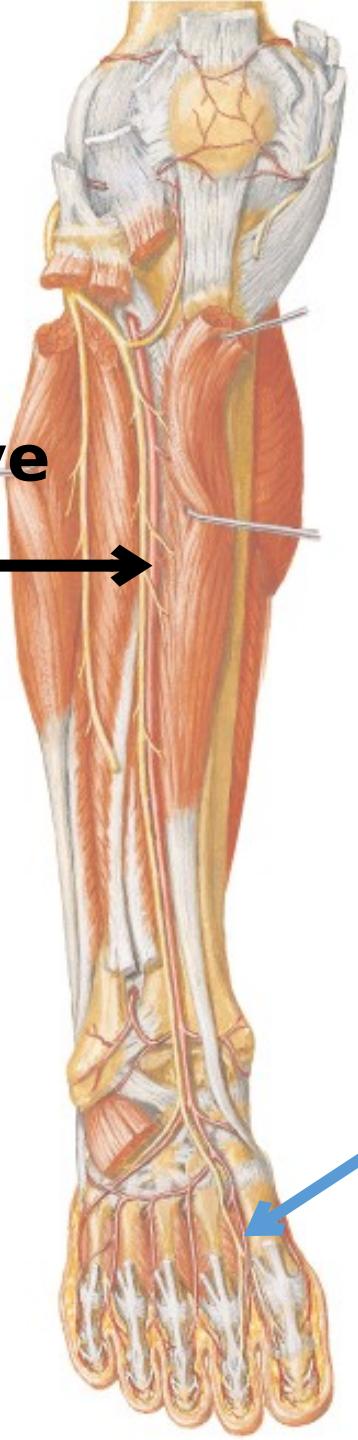


Anterior tibial nerve

Lateral Leg - Neurovasculature



Anterior tibial nerve



Terminal branches

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Branches of anterior tibial nerve



**Muscular to
all muscles
of the
anterior
compartment**

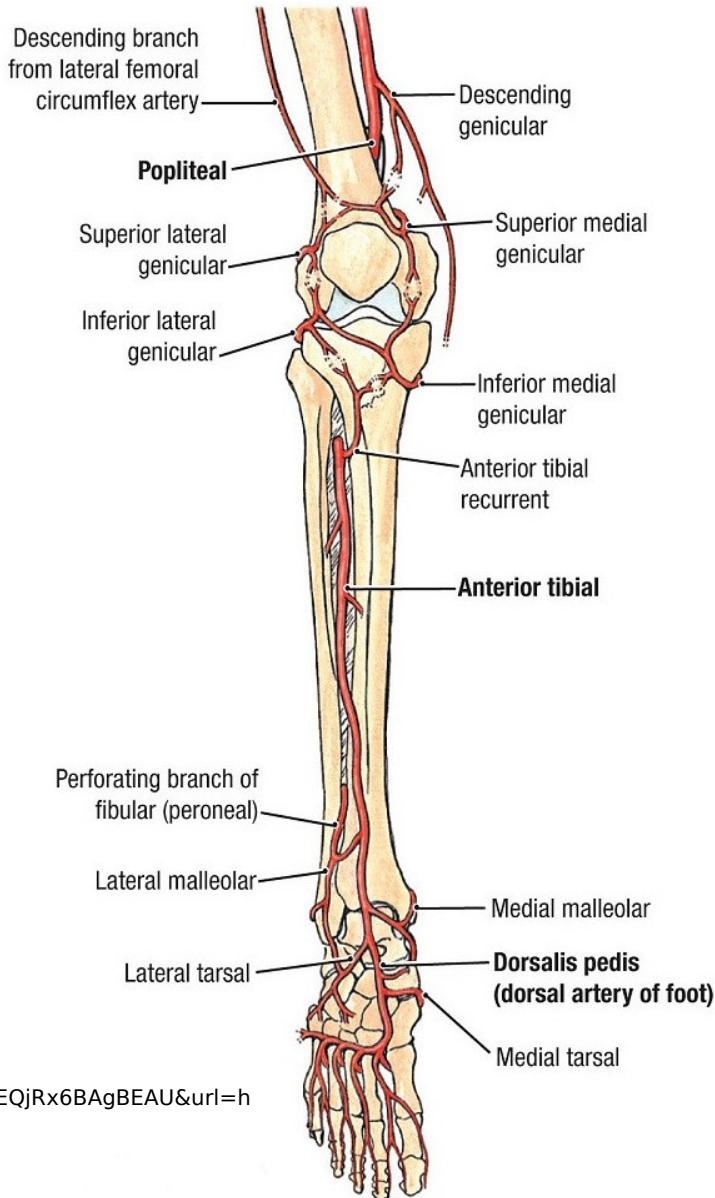
**Articular
to the
ankle
joint**

**Terminal
branches**
**Medial br. To
the skin of
adjacent sides
of big and
second toe**
**Lateral br. To
extensor
digitorum
brevis muscle**

Anterior tibial artery

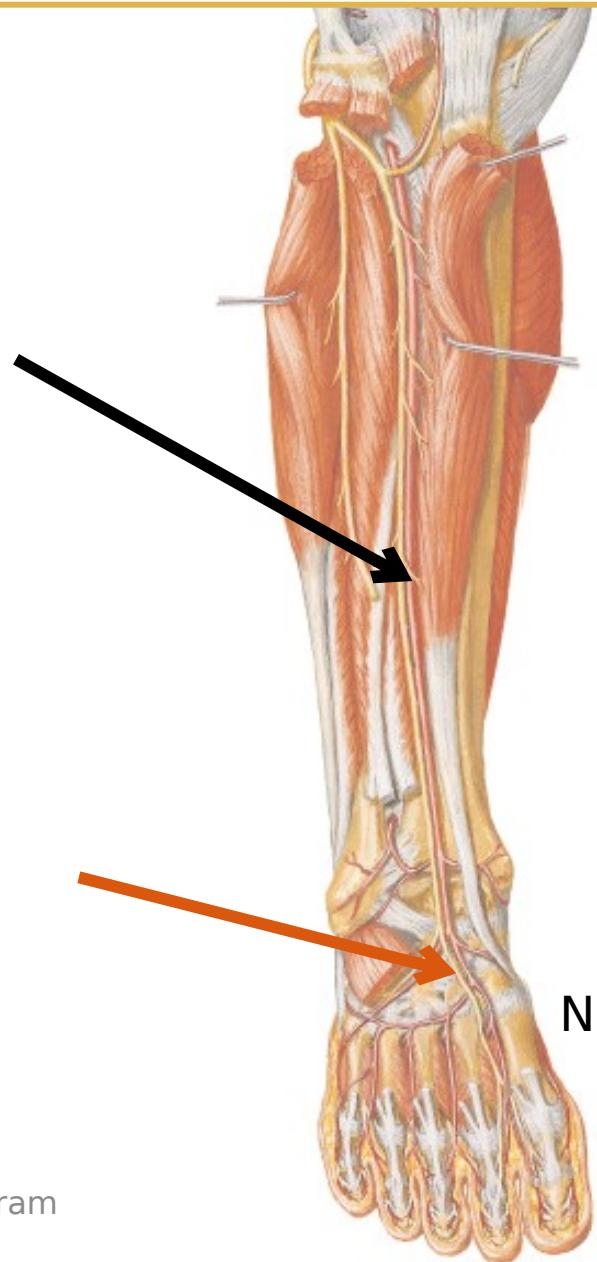


- One of the 2 terminal brs. of the popliteal artery.
- Begins at distal border of popliteus
- It passes through an **opening** in the interosseous membrane to reach the anterior compartment.
- In lower part of leg it lies between extensor hallucis longus and extensor digitorum





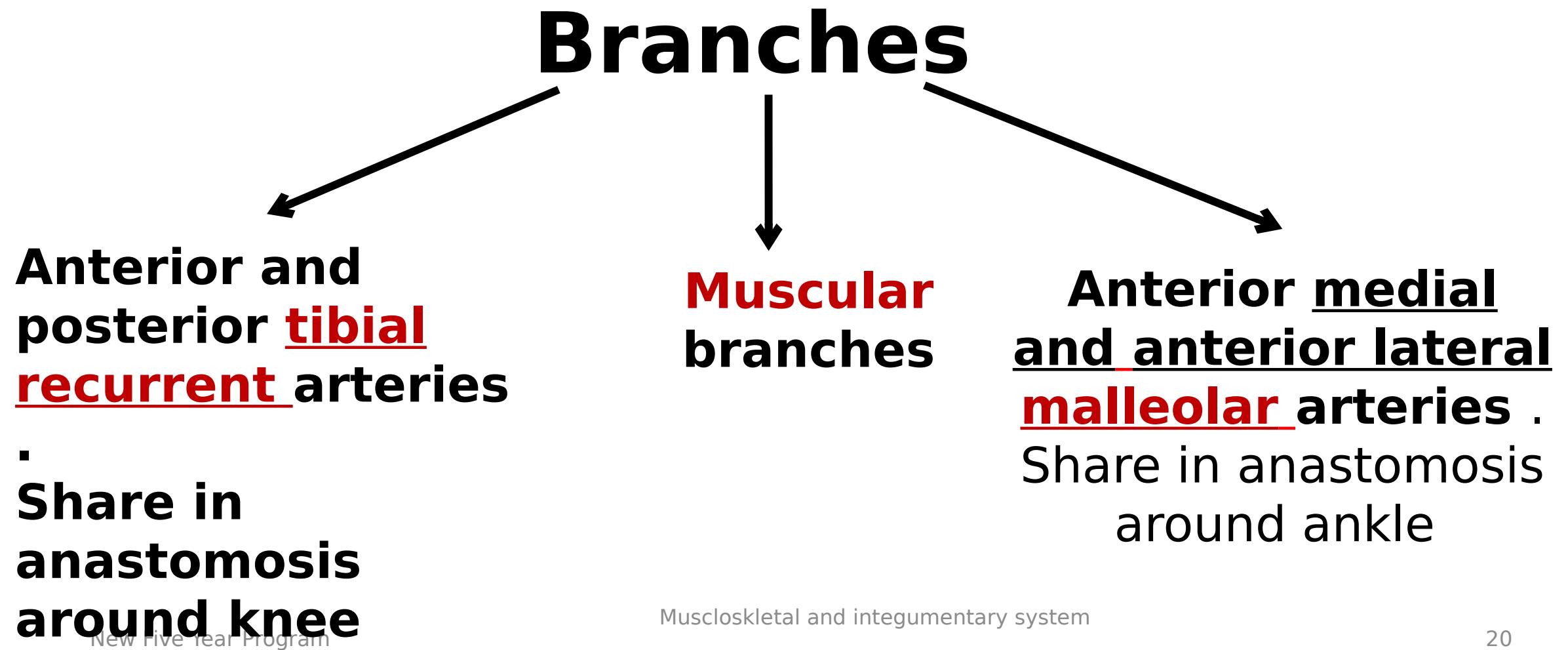
Anterior Tibial Artery



**It continues as
dorsalis pedis
artery by
passing in front
of the ankle
joint between 2
malleoli .**

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Branches of Anterior Tibial Artery



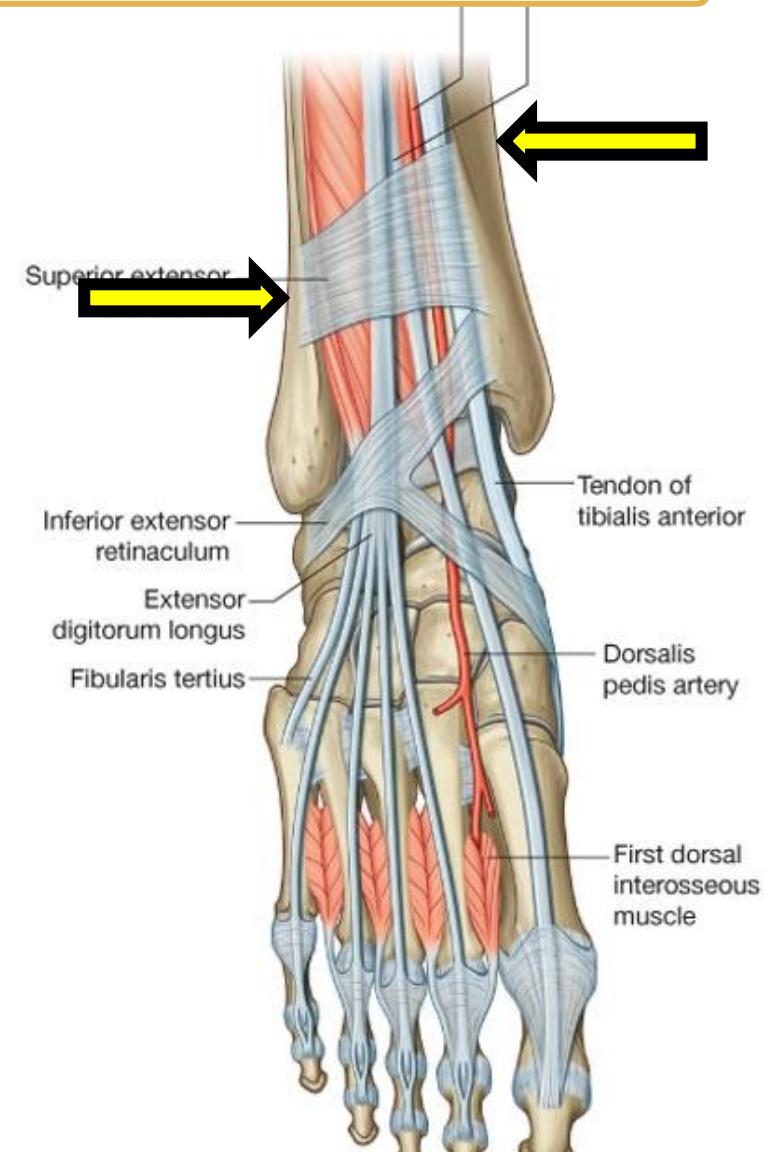


SOR

Superior extensor retinaculum

Anterior extensor retinaculum:

- ❖ Thickened band of deep fascia extends from the **lower part of the anterior border of tibia** to **lower part of the anterior border of fibula**.



Grays for students

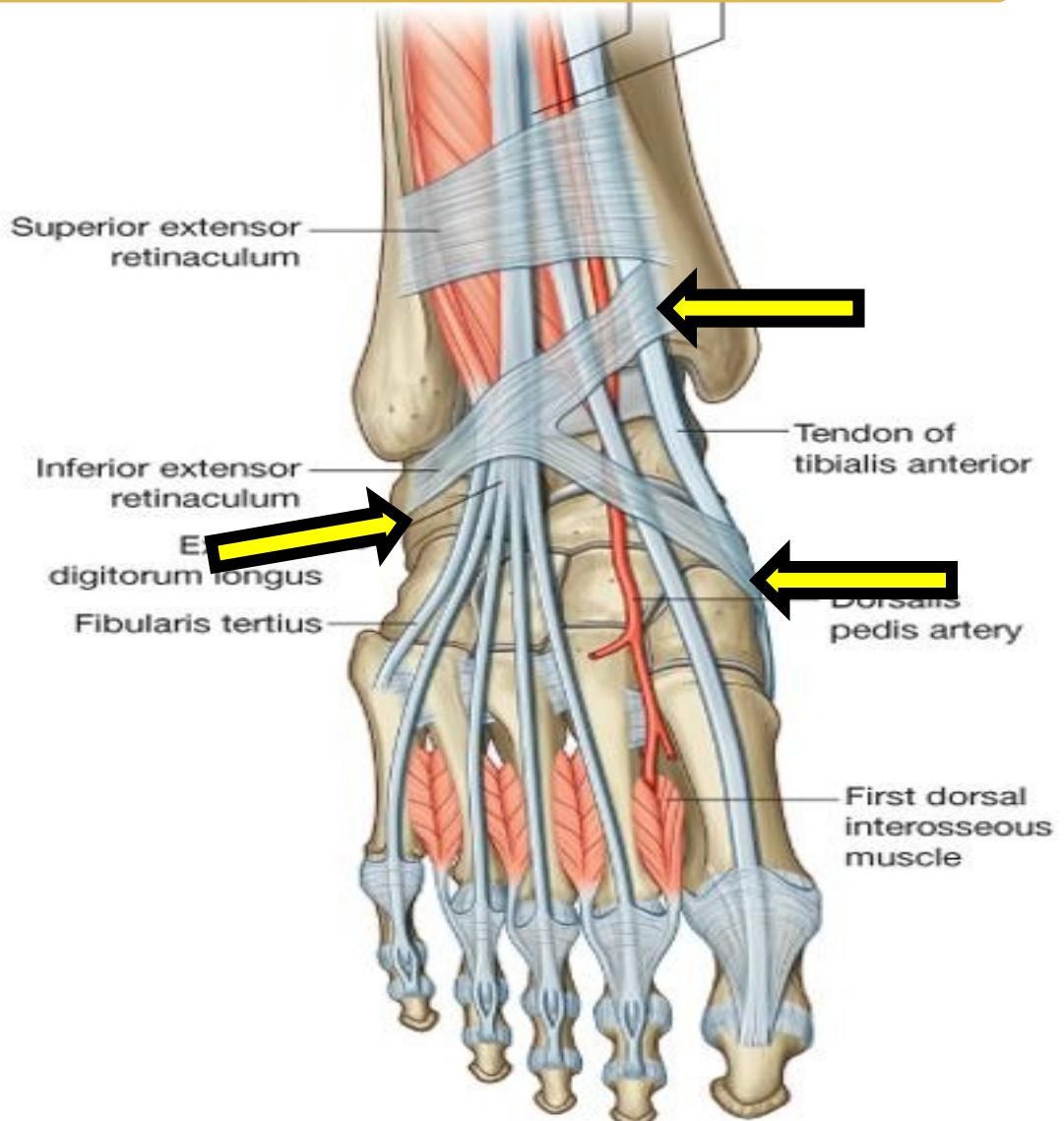
inferior extensor retinaculum



or extensor retinaculum

Y shaped :the stem laterally is attached to the upper surface of calcaneus

-Medially the proximal band attached to the medial malleolus while the distal band attached to the planter



Structures deep to retinaculum

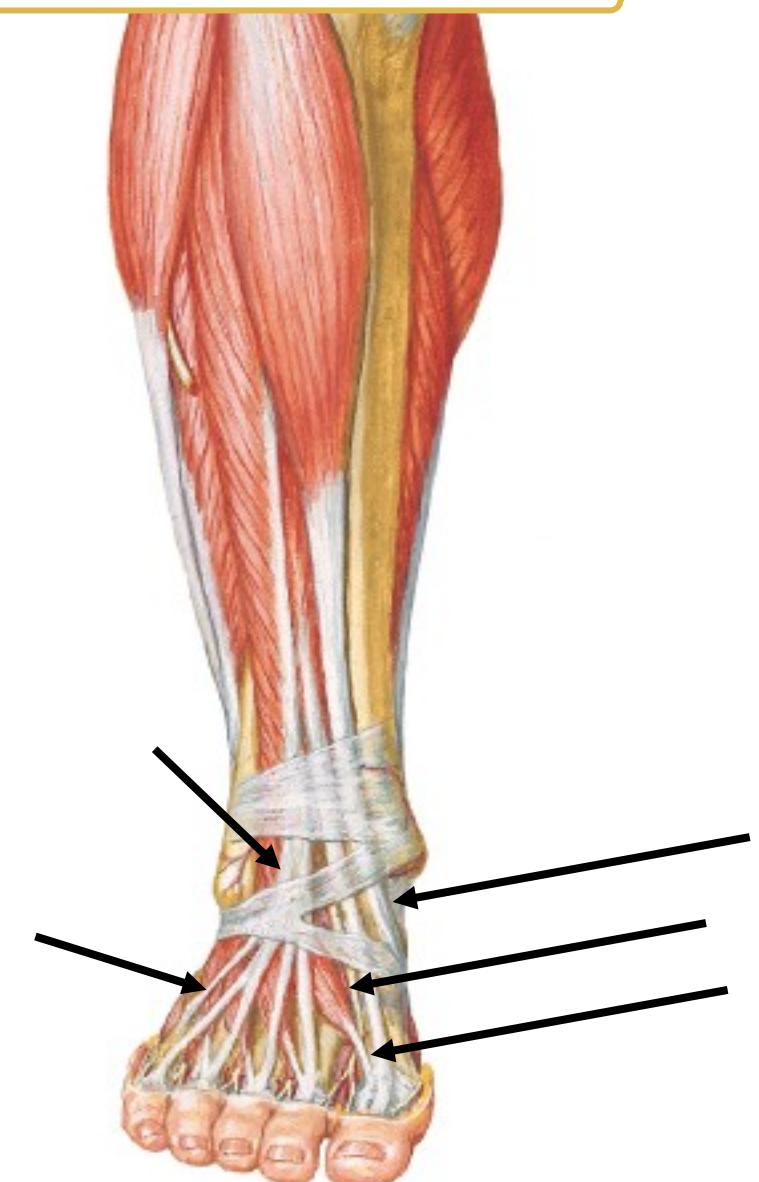


***Tom has very nice
dogs and pigs***

- Tibialis anterior**
- Extensor hallucis**
- Anterior tibial vessels**
- Anterior tibial nerves**
- Extensor digitorum**
- Peroneus tertius**



Musculoskeletal and integumentary system



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Lecture Quiz



Question 1 A patient lost the ability to invert his foot the lesion affected which of the following muscles

- a) Tibialis anterior
- b) Peroneus longus
- c) extensor hallucis

Question 2

Enumerate branches of anterior tibial nerve

Question 3

Enumerate structures deep to extensor retinaculum

SUGGESTED TEXTBOOKS



1. (Regional anatomy by Richard Snell 9th edition)